CPC COOPERATIVE PATENT CLASSIFICATION

G06N COMPUTER SYSTEMS BASED ON SPECIFIC COMPUTATIONAL MODELS

G06N 3/00 **Computer systems based on biological models** (analogue computers simulating functional aspects of living beings G06G 7/60)

G06N 3/002 . { Biomolecular computers, i.e. using biomolecules, proteins, cells (using DNA G06N 3/123; using neurons G06N 3/061) }

G06N 3/004 . { Artificial life, i.e. computers simulating life }

G06N 3/006 . . { based on simulated virtual individual or collective life forms , e.g. single "avatar", social simulations, virtual worlds (computer games A63F 13/00; medical simulations G06F 19/00; information retrieval G06F 17/30873; image processing G06T ; telecommunication protocols H04L 29/06034) }

G06N 3/008 . . { based on physical entities controlled by simulated intelligence so as to replicate intelligent life forms, e.g. robots replicating pets or humans in their appearance or behavior (toys or dolls A63H 3/00; industrial robot control G05B 19/00, B25J 9/00; artificial neural networks G06N 3/00; rule based artificial intelligence G06N 5/00) }

G06N 3/02 . using neural network models (for adaptive control G05B 13/00; for image pattern matching G06K 9/00; for image data processing G06T 1/20; for phonetic pattern matching G10L 15/16)

G06N 3/04 . . Architectures, e.g. interconnection topology

G06N 3/0409 . . . { Adaptive Resonance Theory [ART } networks]

G06N 3/0418 . . . { using chaos or fractal principles }

G06N 3/0427 . . . { in combination with an expert system }

G06N 3/0436 . . . { in combination with fuzzy logic }

G06N 3/0445 . . . { Feedback networks, e.g. hopfield nets, associative networks }

G06N 3/0454 . . . { using a combination of multiple neural nets }

G06N 3/0463 . . . { Neocognitrons }

G06N 3/0472 . . . { using probabilistic elements, e.g. p-rams, stochastic processors }

G06N 3/0481 . . . { Non-linear activation functions, e.g. sigmoids, thresholds }

G06N 3/049 . . . { Temporal neural nets, e.g. delay elements, oscillating neurons, pulsed inputs }

G06N 3/06 . . Physical realisation, i.e. hardware implementation of neural networks, neurons or parts of neurons

G06N 3/061 . . . { using biological neurons, e.g. biological neurons connected to an integrated circuit }

G06N 3/063 . . . using electronic means

G06N 3/0635 . . . . { using analogue means }

G06N 3/067 . . . using optical means

G06N 3/0675 . . . . { using electro-optical, acousto-optical or opto-electronic means }

G06N 3/08 . . Learning methods

G06N 3/082 . . . { modifying the architecture, e.g. adding or deleting nodes or connections, pruning }

G06N 3/084 . . . { Back-propagation }
G06N 3/086 . . . { using evolutionary programming, e.g. genetic algorithms }
G06N 3/088 . . . { Non-supervised learning, e.g. competitive learning }
G06N 3/10 . . Simulation on general purpose computers
G06N 3/105 . . . { Shells for specifying net layout }

G06N 3/12 . using genetic models
G06N 3/123 . . { DNA computers, i.e. information processing using biological DNA }
G06N 3/126 . . { Genetic algorithms, i.e. information processing using digital simulations of the genetic system }

G06N 5/00 Computer systems utilising knowledge based models

G06N 5/003 . { Dynamic search techniques, heuristics, branch-and-bound (G06F 9/44L3B, G06N 5/046 take precedence; for optimisation G06Q 10/00B; for game playing G06F 19/00B) }
G06N 5/006 . . { Automatic theorem proving }

G06N 5/02 . Knowledge representation { (G06N 5/04 takes precedence) }
G06N 5/022 . . { Knowledge engineering, knowledge acquisition }
G06N 5/025 . . . { Extracting rules from data (learning in general G06F 15/18) }
G06N 5/027 . . { Frames }

G06N 5/04 . Inference methods or devices
G06N 5/041 . . { Abduction }
G06N 5/042 . . { Backward inferencing }
G06N 5/043 . . { Distributed expert systems, blackboards }
G06N 5/045 . . { Explanation of inference steps }
G06N 5/046 . . { Forward inferencing, production systems }
G06N 5/047 . . . { Pattern matching networks, RETE }
G06N 5/048 . . { Fuzzy inferencing }

G06N 7/00 Computer systems based on specific mathematical models

G06N 7/005 . { Probabilistic networks }

G06N 7/02 . using fuzzy logic (G06N 3/00, G06N 5/00 take precedence; for adaptive control G05B 13/00)
G06N 7/023 . . { Learning or tuning the parameters of a fuzzy system }
G06N 7/026 . . { Development tools for entering the parameters of a fuzzy system }
G06N 7/04 . . Physical realisation
G06N 7/043 . . . { Analogue or partially analogue implementation }
G06N 7/046 . . . { Implementation by means of a neural network (neural networks using fuzzy logic G06N 3/0436) }
G06N 7/06 . . Simulation on general purpose computers

G06N 7/08 . using chaos models or non-linear system models

G06N 99/00 Subject matter not provided for in other groups of this subclass

G06N 99/002 . { Quantum computers, i.e. information processing by using quantum superposition, coherence, decoherence, entanglement, nonlocality, teleportation }

G06N 99/005 . { Learning machines, i.e. computer in which a programme is changed according to experience gained by the machine itself during a complete run (neural networks G06N 3/02; knowledge based models G06N5; fuzzy logic systems G06N 7/02; adaptive control systems G05B 13/00) }

G06N 99/007 . { Molecular computers, i.e. using inorganic molecules (using biomolecules G06N 3/002) }